Transitional Cell Cancer of the Anus and Rectum

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• A study was made of all cases of transitional cell cancer of the anus or rectum in the records of the University of California Medical Center, San Francisco. None was listed until 1945, then an additional seven between 1954 and 1960. During the latter period there were 192 cases of adenocarcinoma of the rectum, six cases of squamous cell or epidermoid rectal cancer and 12 cases of squamous cell cancer of the anus.

Distinctive and highly malignant anal and rectal epithelial tumors will occasionally arise at or near the anorectal junction from inconstant embryologic entodermal cloacal vestiges. These atypical nonkeratinizing lesions are very similar microscopically to transitional cell tumors found in the cloacogenic portions of the lower genitourinary tract.

Review of the literature indicates that the prognosis of cloacogenic anal and rectal lesions appears to be relatively graver than that for the more common adenocarcinomas and keratinizing squamous cell epitheliomas. Early diagnosis and prompt, radical excision seem to offer the only hope for survival.

RECENTLY there has been increasing clinical awareness that uncommon but distinctive and highly malignant transitional cell epidermoid tumors can arise from the anorectal junction.* The transitional junctional lesions show histologic patterns that cannot be catalogued as true keratinizing squamous cell epidermoid cancer, as adenocarcinoma or as the very rare basal cell anal tumor.

These atypical lesions originate at the anorectal region from a narrow inconstant circular membranous zone, a sometimes persistent embryologic cloacal remnant which in adults is about a centimeter or less in width. This unstable narrow intervening transitional zone above the dentate line separates the entodermal rectal columnar mucosa from the ectodermal anal squamous cell lining. The anal crypts, ducts and glands which are present in this region can also be involved in tumor formations. The transitional or stratified columnar type of epithelium that lines this circular zone closely resembles that of the cloacogenic bladder mucosa and the posterior urethra, all having had a common embryologic origin from the primitive entodermal cloaca.† The cloacogenic membranous mucosal anorectal zone and its accessory structures can readily be demonstrated in a fetus or in an infant at term, but the region is rather inconstant and much less conspicuous in adults.‡

The variety of descriptive terms used by different investigators for transitional cell lesions of the cloacal area has led to confusion with regard to such tumors. The epithets *cloacogenic transitional cancer*,[3,10] *basaloid small cell cancer*,[17] *basaloid cancer*,[2,17] *basosquamous cancer*,[11] *cylindroma*,[5] and others, have all been used to catalogue apparently closely related lesions.§ A pathologist may also code cancers of this order as undifferentiated or anaplastic squamous cell tumors, failing to recognize the true embryologic implications of the anorectal region.

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*References Nos. 3, 6, 10, 11, 17.

†References Nos. 3, 10, 16, 17.

‡References Nos. 3, 4, 10, 14 16.

§References Nos. 6, 7, 12, 13, 15.

CLINICAL-PATHOLOGICAL FEATURES

The transitional tumors that have been described as arising from the complex cloacogenic anorectal zone may involve the upper portion of the anal canal, the adjacent portion of the rectum or both. Transitional epidermoid lesions are also found in the lower part of the rectum without any apparent gross connection to the anorectal region. Submucosal cephalad extensions of the anal ducts and glands can be held accountable for such lesions.*

Clinically, the cloacogenic lesions are symptomatically and grossly indistinguishable from the commoner adenocarcinoma and keratinizing squamous cell cancers found at the anorectal region. However, several distinctive clinical observations have been noted with regard to transitional cell cancers at the anorectum. There is usually sudden onset of clinical symptoms and rapid progression of transitional growth, making the prognosis much poorer than for adenocarcinomas and keratinizing squamous cell cancers at the same site. The microscopic similarity between transitional cell tumors of the anorectum and their analogues in the bladder and posterior urethra is a very striking feature (Figure 1). The presence of nests of transitional epidermoid cells with a low degree of keratinization and an absence

*References Nos. 3, 6, 8, 9, 10, 15, 18.

of epithelial pearl formation are outstanding diagnostic histologic signs (Figures 2, 5, 7). There is often conspicuous peripheral palisading of nuclei surrounding transitional cell masses (Figures 3, 7). Areas of central necrosis can be present in the cell nests (Figures 3, 6).

Transitional cell lesions of the anorectum appear to be more lethal than similar growths in the bladder. Early diagnosis is mandatory for survival and prompt radical excision is the treatment of choice for anorectal cloacogenic lesions.[10,12] Irradiation is impractical as a first choice of treatment because the normal tissues in the region are decidedly sensitive and might be injured by the dosage required for control of the transitional cell lesions.

DISCUSSION

In 1880, Hermann and Defosses[4] first described the close relationship of the embryonic cloaca and its persistent developmental remnants at the anorectal junction to pathologic conditions occurring at the same site. Tucker and Hellwig[16] in 1935 and Tench[14] in 1936 added to the embryologic and anatomic knowledge of the anorectal zone. However, these fine investigative efforts were apparently overlooked and, until recently, had little impact on the study of transitional tumors.

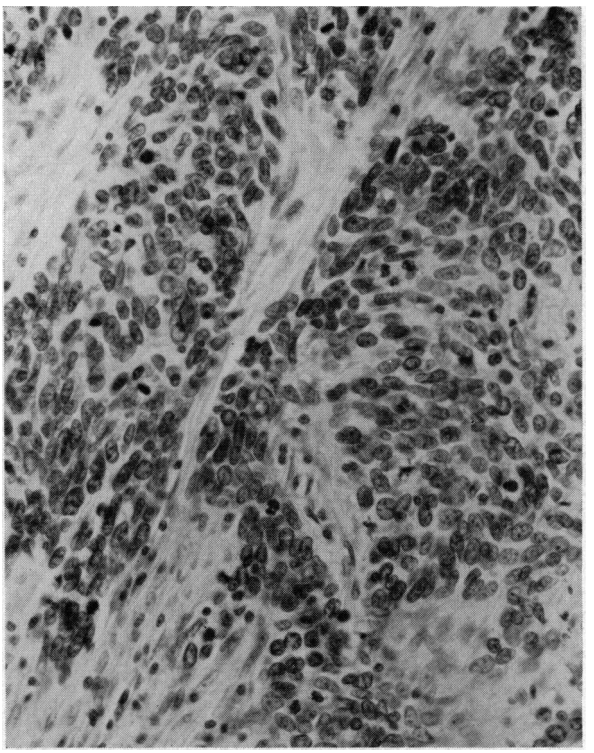

Figure 2 (Case 2, Table 1).—Infiltrating nests and strands of fairly uniform transitional cells surrounded by connective tissue stroma (hematoxylin and eosin stained, ×350).

Figure 1.—Papillary transitional cell cancer of the bladder (hematoxylin and eosin stained, ×300).

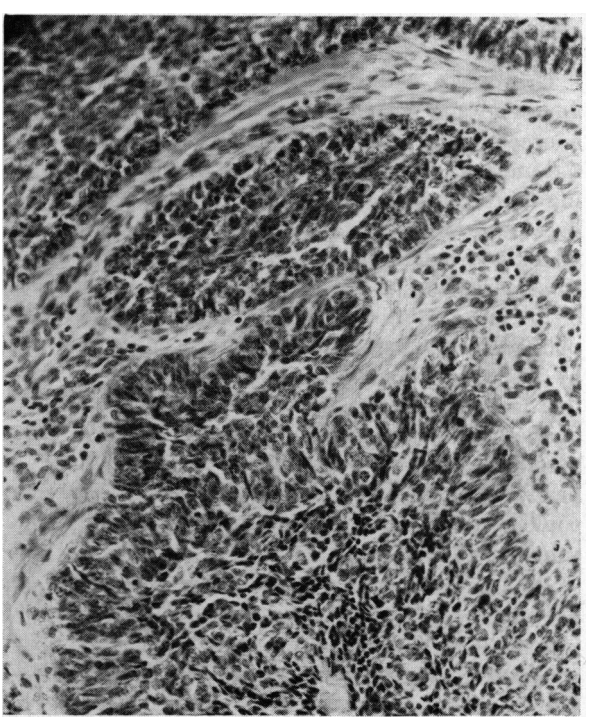

Figure 3 (Case 3, Table 1).—Submucosal nests of pleomorphic transitional cells with central necrosis and a peripheral zone of palisading cells. "Oat-shaped" and spindly cells are present (hematoxylin and eosin stained, ×250).

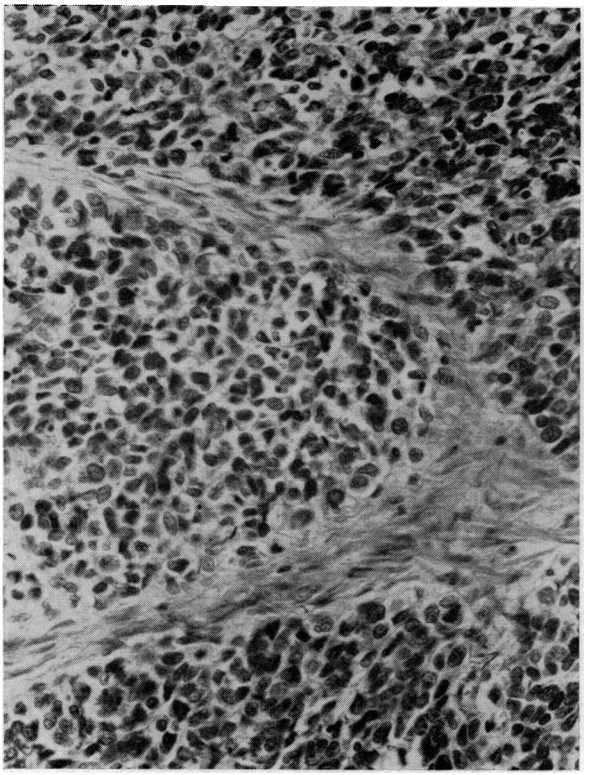

Figure 4 (Case 5, Table 1).—Submucosal infiltrating sheets of transitional cells showing slight pleomorphism. Palisading is not pronounced. Keratinization and epithelial pearls are absent (hematoxylin and eosin stained, ×350).

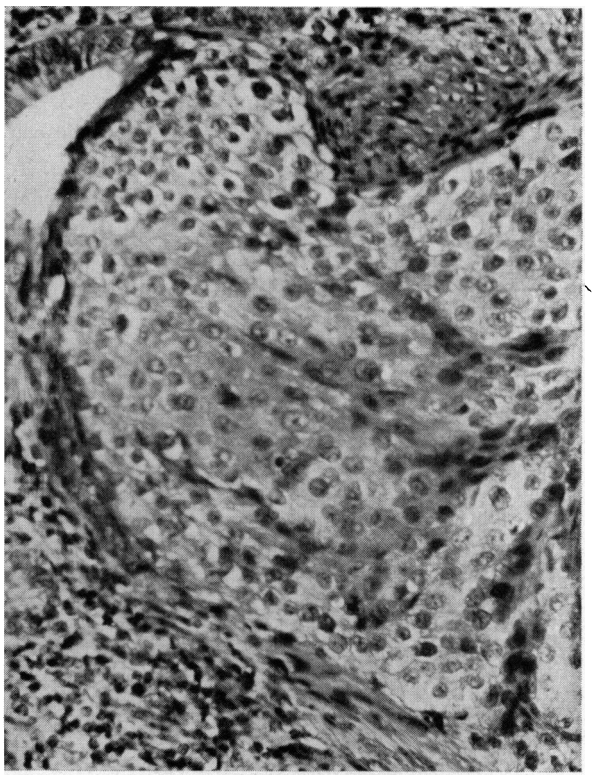

Figure 5 (Case 7, Table 1).—Biopsy specimen of rectal tumor showing an island of well-differentiated transitional cancer (hematoxylin and eosin stained, ×350).

Grinvalsky and Helwig[3] in 1956 made detailed anatomic and histologic studies of the cloacogenic anorectal zone and of its close correlation with the unusual transitional cell malignant lesions arising there. They proposed the term *transitional cloacogenic carcinoma* to designate the atypical anorectal tumors originating from persisting embryologic cloacal vestiges above the dentate line. The varied histologic patterns of anorectal tumors were explained by the presence of a mixed epithelium and by the different possible primary sites of origin—that is, the mucosal transitional lining, the anal duct epithelium or the accessory glands. They also suggested that rectal epidermoid carcinomas, which appear to be independent of the anorectal junction, could arise from anal ducts that follow a cephalad submucosal rectal course.

During the past five years, a few interesting and provocative communications have appeared describing anorectal lesions with the transitional cell characteristics suggested by Grinvalsky and Helwig. However, the variety of descriptive terms applied by various investigators to apparently closely related lesions has brought considerable confusion. Grinnell[2] in 1954 analyzed 49 cases of anal squamous cell cancers and found 16 with "basal cell" characteristics. In three of the 16, metastatic lymph node involvement developed. Wittoesch, Woolner and Jackman[17] in 1957 reported on 28 patients with supposed basal cell anal lesions. Seven of these patients, who had anal canal tumors adjacent to the anorectal line, were reclassified as having "basaloid small cell" cancer, the term being used to distinguish the lesions from the rarer and relatively benign basal cell epitheliomas arising from the distal anal margin. The "small cell basaloid" cancers had a short symptomatic clinical course and a decided tendency to rapid metastatic spread.[1,10] Schilla[11] in 1959, in discussing basal cell anal lesions, mentioned three patients with lesions having "basosquamous" characteristics and metastatic involvements. Other observers have employed different descriptive labels for similar anal and rectal lesions that appear to be of closely related cloacogenic origin.[6,15,18] Some of the tumors have also been listed as undifferentiated or anaplastic squamous cell cancers.

A comprehensive review by Schechterman, published in 1960, brought the subject of cloacogenic anorectal tumors up to date.[10] He separated the anorectal transitional cancers into two basic pathologic patterns—the more common nonkeratinizing transi-

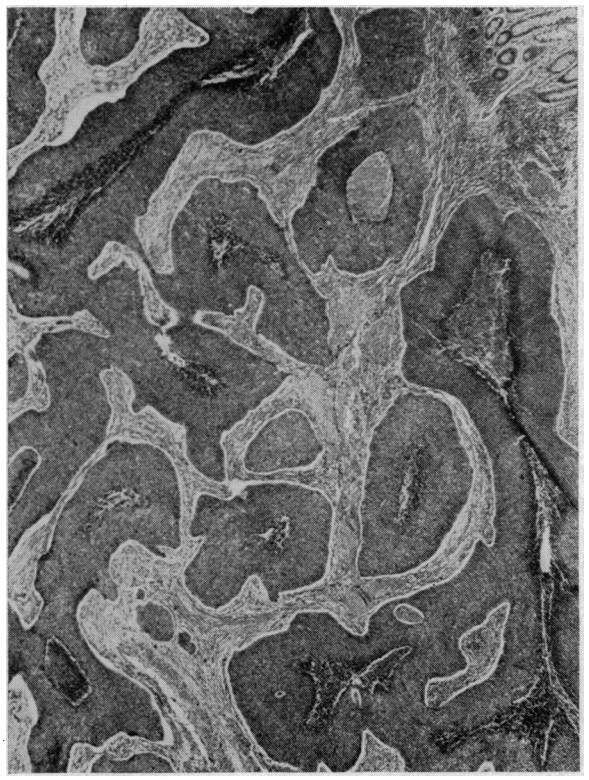

Figure 6 (Case 8, Table 1).—Circumscribed variegated submucosal nests of transitional cells encapsulated by fibrous stroma. There is central necrosis in the tumor cell masses (hematoxylin and eosin stained, ×35).

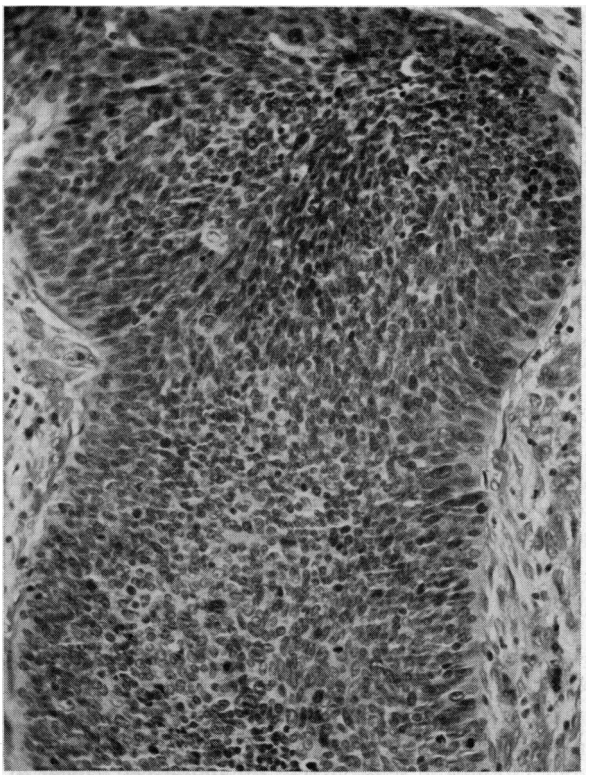

Figure 7 (Case 8, Table 1).—A circumscribed mass of fairly uniform transitional cells with a peripheral zone of palisading tumor cells. No keratinization or epithelial pearl formations. There are multiple mitoses (hematoxylin and eosin stained, ×250).

TABLE 1.—*Transitional-Cell Cancer of the Anus and Rectum (University of California Medical Center, 1919-1960).*

Case No. Year	Age (Years)	Sex	Symptoms	Gross Lesion	Treatment	Course
1. 1945	79	F	Anorectal bleeding increasing, 2+ years	Protruding cauliflower anal mass, 3 x 4 cm., involving anus and distal rectum	Refused	Died, terminal cancer, 4 months after diagnosis
2. 1954	51	F	Diarrhea, anorectal bleeding, narrowed stool, 6 months	Proliferating, ulcerating tumor, 5 x 7 cm., involving anus and rectum	Abdominoperineal resection followed by bilateral inguinal lymph node dissections	No recurrence, 6 years
3. 1954	68	F	Bloody-mucoid anorectal discharge, 6 months	Proliferating, ulcerating anterior anorectal tumor, 2 x 3 cm.	Abdominoperineal resection followed by irradiation of rectovaginal septum	No recurrence, 6 years
4. 1954	71	F	Increasing constipation, abdominal distention, bleeding, 6 months	Fungating ulcerating mass surrounding anus	Abdominoperineal resection	No recurrence, 6 years
5. 1955	71	F	Change in bowel habits; anorectal bleeding, pain, 7 months	Two separate nodular, ulcerating masses, distal rectum	Abdominoperineal resection	Died, metastatic cancer, 18 months after operation
6. 1956	47	F	Anorectal bleeding, discomfort, 2 months	Two separate firm polypoid tumors, distal rectum	Abdominoperineal resection	No recurrence, 4 years
7. 1959	58	M	Anorectal bleeding; feces, gas, blood via penis, 4 months	Fungating mass anterior rectal wall; rectovesical fistula	Exploratory laparotomy and colostomy. (Transurethral resection, orchiectomy, irradiation 1 year previously)	Died, metastatic cancer
8. 1960	63	F	Anorectal bleeding, discomfort, discharge 1 month	Indurated smooth mass involving entire posterior rectal wall	Abdominoperineal resection	Died, generalized metastases, 7 months after operation

tional cell tumors arising from the membranous anorectal mucosal zone, and the rarer and even more lethal pleomorphic small cell transitional tumor developing from the anal duct epithelium. Reporting on nine cases, Schechterman was impressed by the rapid onset of clinical symptoms and a quick progression of most of the tumors to widespread metastasis. Seven of the nine patients were females. Early diagnosis of the cloacogenic anorectal lesion and prompt radical surgical excision were looked upon as keys to the only hope for survival.

PRESENT STUDY

In all the records of the University of California Medical Center concerning all malignant lesions of the rectum and anus for the period 1919 to 1960, no case of transitional cell cancer of the anus or rectum was listed until 1945. Then, during the period 1954 to 1960 seven additional cases were coded as transitional cell tumors (Table 1). Four involved the distal portion of the rectum, two both the anal canal and adjacent rectum, and one solely the anal canal. During the same seven-year interval, there were 192 cases of adenocarcinoma of the rectum, six cases of squamous cell or epidermoid rectal cancer and 12 cases of keratinizing squamous cell cancer of the anus. In addition, nine cases were catalogued as undifferentiated carcinoma of the rectum (Table 2). No true case of an anal basal cell lesion was recorded during this period. It would seem that the cloacogenic anorectal lesions make up a relatively small proportion of all the anal and rectal tumors. Future studies and more experience with these tumors might reveal that some lesions now being catalogued as anaplastic or undifferentiated epidermoid cancers might actually be of cloacogenic transitional cell origin.

No firm conclusions can be drawn from the meager series of cases in the present study or from the comparatively few cloacogenic anorectal lesions mentioned in the recent literature. However, certain pertinent and striking observations can be made. Only one of the eight patients (Table 1) was a man, and he had had previous treatment for a prostatic cancer. The duration of anorectal symptoms for the entire group was brief, averaging less than six months. With radical excision following prompt diagnosis the salvage rate was 50 per cent, three patients having no recurrence in six years and one in four years of observation (Table 1).

There were no typical clinical symptoms or distinctive gross features of the lesions to aid in separating the transitional cloacogenic tumors from the more usual anal or rectal cancers. The most frequent histologic patterns in the series resembled the transitional cell features observed in tumors arising from the transitional cloacogenic portion of the lower genitourinary tract (Figures 1, 2, 5, 7). There was little of the keratinization or epithelial pearl formations that are invariably seen in the commoner epidermoid anorectal lesions (Figures 2 to 7). Further combined clinical and pathologic investigations will be necessary for a more complete understanding of these somewhat complex, atypical and comparatively rare cloacogenic anal and rectal tumors.

TABLE 2.—*Cases of Carcinoma of Rectum and Anus (University of California Medical Center, 1954-1960).*

	Rectum	Anus
Adenocarcinoma	192	0
Squamous cell	6	12
Transitional cell	6*	1
Basal cell	0	0
Undifferentiated	9	0

*Two patients had involvement of both the rectum and anus.

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